

# SOLUTIONS

## Fortify Sample Exam 2B

### Section A - Data analysis

#### Question 1

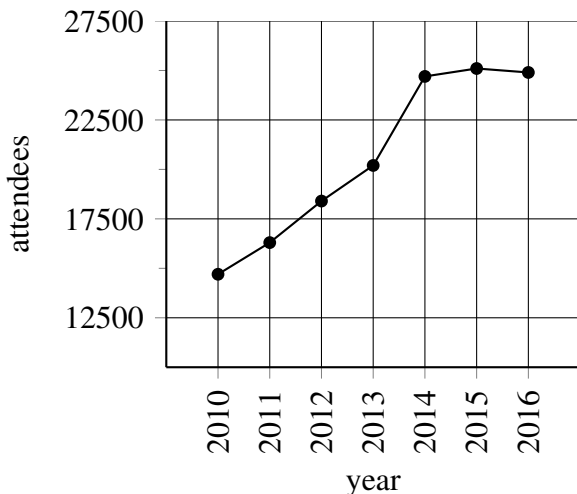
- a. On average male stress levels increase by 0.92% for every 1% increase in female stress levels.
- b. 43.4%
- c. 71% of the variation in male stress levels can be explained by the variation in female stress levels.

#### Question 2

- ai. 28 curses
- aii. 30%
- b. 2.5%

#### Question 3

a.



- b. Increasing trend.
- c. attendees = 14775 + 1946 × time
- d. -2097

### Section A - Recursion and financial modelling

#### Question 4

- a.  $V_0 = 90\,000$ ,  $V_{n+1} = V_n \times 1.006 - 1500$
- b. Less

#### Question 5

- ai. Amount owed = \$36,560.32
- aii. Total interest paid = \$4,760.32
- b.  $\$P = \$14,650$

#### Question 6

- a. Initial deposit = \$10,000
- b. Check with your teacher.
- c. Interest rate = 5%
- di.  $V_n = 1.05^n \times 10\,000$
- dii. \$14,071.00

## Section B - Module 1 - Matrices

### Question 1

- a. Lester, Nicola and Penelope
- b. Nicola

### Question 2

- a. 190 mice

b.

$$S_1 = \begin{bmatrix} 100 \\ 100 \\ 110 \\ 90 \end{bmatrix}$$

- c. 22%

cii. The expected approval preferences of 145,000 citizens in April 2018.

### Question 3

- a.  $4 \times 3$  or 4 by 3
- b. 500
- c. The number of Jans, Michaels and Vincents living in Quadrant Alpha in 2018.
- d. The number of columns in Matrix  $R$  is equal to the number of rows in Matrix  $M$ .
- e.  $390 \times 0.35 + 450 \times 0.15 + 470 \times 0.50 = 439$
- f. 1,743

## Section B - Module 2 - Networks and decision mathematics

### Question 1

4

### Question 2

Harry	Task 1
Jess	Task 2
Kayla	Task 3
Isaac	Task 4

Kayla	Task 1
Jess	Task 2
Harry	Task 3
Isaac	Task 4

### Question 3

- a. 30 hours
- b. 44 hours
- c. 8 hours
- d. 42 hours
- e. \$220

### Question 4

- ai. Base  $L$  and Base  $O$
- aii. 960 metres
- b. 400 metres ( $P-M-N-O-K-L$ )
- c.  $L$  and  $N$

### Section B - Module 3 - Geometry and measurement

#### Question 1

- a.  $\alpha = 90^\circ$
- a.  $\theta = 40^\circ$
- b.  $A = 767.56 \text{ cm}^2$

#### Question 2

- a. Tuesday at 7:00am
- b. Eastern distance = 97 m
- b. Southern distance = 56 m
- c. Check with your teacher.
- d. 3,149 km

#### Question 3

- a.  $BC = 34.59 \text{ cm}$
- b. Check with your teacher.
- c.  $ST = 9 \text{ cm}$
- d.  $A = 53 \text{ cm}^2$

### Section B - Module 4 - Graphs and relations

#### Question 1

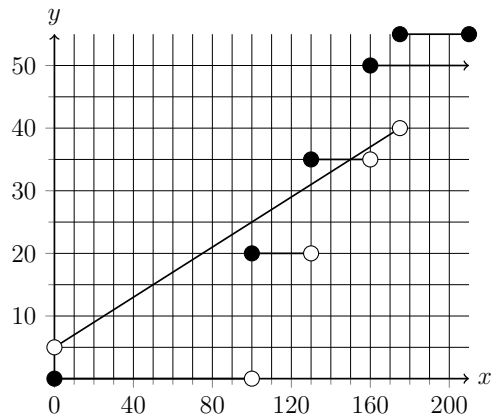
- a. 10:00am
- b. 9 hours

#### Question 2

- a. Check with your teacher.
- b. There is a fixed cost of \$350 when converting Bitcoin to Australian Dollars.

#### Question 3

- a. 35%
- b. 21%
- c.



- d. 150 kg

#### Question 4

- a. Check with your teacher.
- b. \$51
- c. 32